

What is claimed is:

1 1. A method of establishing adjacencies on a network, the method comprising, at a first
2 node of the network,
3 sending hello packets on the network;
4 receiving hello packets from other nodes on the network on the basis of the received hello
5 packets;
6 sending a link-state packet without adjacency information and without an overload bit set;
7 interrogating a link-state adjacency table and, when only one adjacency is listed in the link-
8 state table, sending a further link-state packet with the adjacency information and the
9 overload bit set; and
10 on convergence of a forward cache, sending a further link-state packet with adjacency
11 information and without the overload bit set.

1 2. A method according to claim 1 wherein the method is initiated when the first node is
2 in a restart node.

1 3. A method according to claim 2 wherein the restart node is a line card restart, a router
2 restart or a download of a forwarding information base.

1 4. A method according to claim 1 wherein the network uses Intermediate System-to-
2 Intermediate System protocol and wherein the adjacency information is advertised in a Type
3 Length Variable field of the link-state packet.

1 5. A method of re-establishing adjacency in an inter-networked system, the method
2 comprising:

- 3 i) determining that adjacency establishment is required;
- 4 ii) transmitting a message to discover neighboring network elements;
- 5 iii) receiving messages from neighboring network elements; and
- 6 iv) in response to the received messages, generating a link-state packet;

7 v) sending the link-state packet without adjacency information and without an
8 overload bit set;
9 vi) interrogating a link-state adjacency table and, when only one adjacency is
10 listed in the link-state table, sending a further link-state packet with the
11 adjacency information and the overload bit set; and
12 vii) on convergence of a forward cache, sending a further link-state packet with
13 adjacency information and without the overload bit set.

1 6. A computer-readable medium carrying one or more sequences of instructions for
2 establishing adjacency in a network, which instructions, when executed by one or more
3 processors, cause the one or more processors to carry out the steps of:
4 sending hello packets on the network;
5 receiving hello packets from other nodes on the network on the basis of the received hello
6 packets;
7 sending a link-state packet without adjacency information and without an overload bit set;
8 interrogating a link-state adjacency table and, when only one adjacency is listed in the link-
9 state table, sending a further link-state packet with the adjacency information and the
10 overload bit set; and
11 on convergence of a forward cache, sending a further link-state packet with adjacency
12 information and without the overload bit set.

1 7. A computer-readable medium as claimed in claim 6 further comprising instructions
2 which, when executed by the one or more processors, cause the one or more processors to
3 carry out the steps of:
4 initiating the method when in a restart node.

5 8. A computer-readable medium as claimed in claim 6 further comprising instructions
6 which, when executed by the one or more processors, cause the one or more processors to
7 carry out the steps of:
8 initiating the method when in a restart mode comprising one or more of the following:
9 a line card restart, a router restart or a download of a forwarding information
10 base.

1 9. A computer-readable medium according to claim 6 wherein the network uses
2 Intermediate System-to-Intermediate System protocol and wherein the adjacency information
3 is advertised in a Type Length Variable field of the link-state packet.

1 10. A computer-readable medium carrying one or more sequences of instructions for
2 establishing adjacency in a network, which instructions, when executed by one or more
3 processors, cause the one or more processors to carry out the steps of:
4 i) determining that adjacency establishment is required;
5 ii) transmitting a message to discover neighboring network elements;
6 iii) receiving messages from neighboring network elements; and
7 iv) in response to the received messages, generating a link-state packet;
8 v) sending the link-state packet without adjacency information and without an
9 overload bit set;
10 vi) interrogating a link-state adjacency table and, when only one adjacency is
11 listed in the link-state table, sending a further link-state packet with the
12 adjacency information and the overload bit set; and
13 vii) on convergence of a forward cache, sending a further link-state packet with
14 adjacency information and without the overload bit set.

1 11. Apparatus for establishing adjacencies on a network, the apparatus comprising:
2 means for sending hello packets on the network;
3 means for receiving hello packets from other nodes on the network on the basis of the
4 received hello packets;

5 means for sending a link-state packet without adjacency information and without an
6 overload bit set;
7 means for interrogating a link-state adjacency table and, when only one adjacency is
8 listed in the link-state table, sending a further link-state packet with the
9 adjacency information and the overload bit set; and
10 on convergence of a forward cache, means for sending a further link-state packet with
11 adjacency information and without the overload bit set.

1 12. Apparatus for re-establishing adjacency in an inter-networked system, the apparatus
2 comprising:
3 i) means for determining that adjacency establishment is required;
4 ii) means for transmitting a message to discover neighboring network elements;
5 iii) means for receiving messages from neighboring network elements; and
6 iv) means for in response to the received messages, generating a link-state packet;
7 v) means for sending the link-state packet without adjacency information and
8 without an overload bit set;
9 vi) means for interrogating a link-state adjacency table and, when only one
10 adjacency is listed in the link-state table, sending a further link-state packet
11 with the adjacency information and the overload bit set; and
12 vii) on convergence of a forward cache, means for sending a further link-state
13 packet with adjacency information and without the overload bit set.

1 13. An apparatus for establishing adjacencies on a network, the apparatus comprising:
2 a network interface that is coupled to the network for receiving one or more packet
3 flows therefrom;
4 a processor;
5 one or more stored sequences of instructions which, when executed by the processor,
6 cause the processor to carry out the steps of:
7 sending hello packets on the network;
8 receiving hello packets from other nodes on the network on the basis of the received
9 hello packets;

10 sending a link-state packet without adjacency information and without an overload bit
11 set;
12 interrogating a link-state adjacency table and, when only one adjacency is listed in the
13 link-state table, sending a further link-state packet with the adjacency
14 information and the overload bit set; and
15 on convergence of a forward cache, sending a further link-state packet with adjacency
16 information and without the overload bit set.

1 14. An apparatus for establishing adjacencies on a network, the apparatus comprising:
2 a network interface that is coupled to the network for receiving one or more packet
3 flows therefrom;
4 a processor;
5 one or more stored sequences of instructions which, when executed by the processor,
6 cause the processor to carry out the steps of:
7 i) determining that adjacency establishment is required;
8 ii) transmitting a message to discover neighboring network elements;
9 iii) receiving messages from neighboring network elements; and
10 iv) in response to the received messages, generating a link-state packet;
11 v) sending the link-state packet without adjacency information and without an
12 overload bit set;
13 vi) interrogating a link-state adjacency table and, when only one adjacency is
14 listed in the link-state table, sending a further link-state packet with the
15 adjacency information and the overload bit set; and
16 vii) on convergence of a forward cache, sending a further link-state packet with
17 adjacency information and without the overload bit set.